



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION 5
25063 CENTER RIDGE ROAD
WESTLAKE, OH 44145-4114

August 8, 2016

MEMORANDUM

SUBJECT: CWA-NPDES Sampling Inspection at the Sunrise Coal Carlisle Mine in Carlisle, Indiana

FROM: Jonathan Moody, Environmental Engineer *JM*

THRU: Mark Conti, Technical Team Leader *MCC*
Cleveland Office (ME-W)

TO: Water Enforcement and Compliance Assurance, Section 1

ATTN: Barbara R. VanTil, Section Chief

Enclosed is the report, for your review, summarizing a sampling inspection performed by Jonathan Moody at the Sunrise Coal Carlisle Mine in Carlisle, Indiana. If you have any questions regarding this report, feel free to contact Jonathan Moody at (440) 250-1708.

Attachment

cc: Brooke Furio, ME-W (w/o attachments)

Clean Water Act Inspection Sampling Report

Sunrise Coal LLC, Carlisle Mine
1466 East State Road 58
Carlisle, Indiana 47838

EPA Region 5 Inspection Team:

John Jurevis, EPA Region 5 Water Division
Jonathan Moody, EPA Region 5 Office of Enforcement and Compliance Assurance

Dates of Inspection: June 7, 2016 to June 9, 2016

Report Prepared by: Jonathan Moody, Environmental Engineer

U.S. Environmental Protection Agency
Region 5
Office of Enforcement & Compliance Assurance, Cleveland Office
25063 Center Ridge Road, Westlake, OH 44145

TABLE OF CONTENTS

1. SUMMARY OF FIELD ACTIVITIES AND OBSERVATIONS

- 1.1 Objectives of Sampling Effort
- 1.2 Facility Description
- 1.3 Sampling Event Description
- 1.4 Sampling Shipping Information

2. SAMPLING RESULTS

Tables

- Table 1 – EPA Sample Collection Information
- Table 2 – Field Monitoring Locations and Measurements
- Table 3 – Sample Results

Figures

- Figure 1 – Sampling Locations
- Figure 2 – Sampling Locations Close Up
- Figure 3 – Field Conductivity Measurements

- Appendix A – Photolog
- Appendix B – Chain of Custody Records
- Appendix C – Region 5 Chicago Regional Laboratory Analysis Reports for the
EPA June 8, 2016 Sampling at the Sunrise Carlisle Mine.
- Appendix D – Quality Assurance Project Plan (QAPP)
- Appendix E – NPDES Permit No. IN0062791

1. SUMMARY OF FIELD ACTIVITIES AND OBSERVATIONS

1.1 Objective of Sampling Effort

At the request of EPA, Region 5 Water Division, Jonathan Moody from EPA Region 5 Office of Enforcement and Compliance Assurance collected samples in order to check compliance with the Clean Water Act (CWA) and the National Pollutant Discharge Elimination System (NPDES) Permits. Samples were collected with the assistance of John Jurevis from the EPA Region 5 Water Enforcement and Compliance Assurance Branch.

1.2 Facility Description

The Sunrise Coal, LLC. Carlisle Mine consists of an underground coal mining operation and a coal processing plant. Wastewater is generated from the underground mine works, fine coal disposal basin and runoff from coal storage, refuse disposal and other industrial areas. The facility discharges wastewater under two NPDES Permits. An individual permit No. IN0062791 and a permit by rule No. ING040199.

During this inspection, the team sampled two active discharge locations and three instream locations. A summary is provided below:

Outfall 003 – Discharge from a sediment basin located north west of the active coal slurry disposal basin. At the time of the inspection this basin was discharging through a riprap lined overflow. This is monitored under permit ING040199.

Outfall 202 – Discharge from Pond D. At the time of the inspection Pond D was discharging to a riprap lined conveyance. The flow in the conveyance could be flowed for approximately 50 feet from the pond. At this point the flow entered a subsurface conveyance with an unknown outlet. This discharge is monitored under permit ING040199.

ENFORCEMENT CONFIDENTIAL/ FOIA EXEMPT

Marsh Creek at South County Road 13 SE – Sample collected from the downstream side of roadway crossing. This location is upstream of contribution of Outfall 003 to Marsh Creek.

Marsh Creek at East State Road 58 – Sample collected from the upstream side of roadway crossing. This location is downstream of the contribution of Outfall 003 to Marsh Creek and upstream of the contribution from Outfall 202.

Marsh Creek at South County Road 50 E – Sample collected from the upstream side of roadway crossing. This location is downstream of the contribution of Outfall 003, 202 and the other known discharge locations associated with the preparation plant.

1.3 Sampling Description

On June 8, 2016 EPA personnel collected samples in order to assess compliance with the CWA and the NPDES permits. In addition to the wastewater samples, EPA personnel also used a YSI 556 MPS, serial number 14J1001578, to monitor pH, Conductivity and Dissolved Oxygen at various locations on June 8 and June 9, 2016. The meter was fitted with a YSI 5565 probe for pH measurements, a YSI 5560 probe for Conductivity and a gold foil membrane for the Dissolved Oxygen measurements.

Below is summary of the samples collected by EPA:

| TABLE 1 Sunrise Coal Company – Carlisle Mine – EPA Sample Collection Information | | | | |
|--|-------------|------------------------|--|---|
| Sample No. | Sample Type | Collection Date – Time | Sample Description | Sampling Method |
| S01 | water | 6/8/16 – 15:23 | Samples were collected from Outfall 003. Samples were collected for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. | Grab samples were collected using a collection jar and transferred to sample bottles. All samples |

ENFORCEMENT CONFIDENTIAL/ FOIA EXEMPT

| | | | | |
|-----|-------|----------------|--|---|
| | | | Measurements for pH and conductivity were performed in the field. | were placed in a cooler containing ice and preserved as required. The samples were delivered to the Chicago Region Lab on 6/9/2016. |
| D02 | water | 6/8/16 – 15:30 | Samples were collected from Outfall 003. Samples were collected for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. Measurements for pH and conductivity were performed in the field. | Grab samples were collected using a collection jar and transferred to sample bottles. All samples were placed in a cooler containing ice and preserved as required. The samples were delivered to the Chicago Region Lab on 6/9/2016. |
| S03 | water | 6/8/16 – 16:15 | Samples were collected from Outfall 202. Samples were collected for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. Measurements for pH and conductivity were performed in the field. | Grab samples were collected using a collection jar and transferred to sample bottles. All samples were placed in a cooler containing ice and preserved as required. The samples were delivered to the Chicago Region Lab on 6/9/2016. |
| S04 | water | 6/8/16 – 17:07 | Samples were collected from Marsh Creek. Samples were collected for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. Measurements for pH and conductivity were performed in the field. | Grab samples were collected directly to sample bottles. All samples were placed in a cooler containing ice and preserved as required. The samples were delivered to the Chicago Region Lab on 6/9/2016. |
| S05 | water | 6/8/16 – 17:33 | Samples were collected from Marsh Creek. Samples were collected for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. Measurements for pH and conductivity | Grab samples were collected directly to sample bottles. All samples were placed in a cooler containing ice and preserved as required. The samples were |

ENFORCEMENT CONFIDENTIAL/ FOIA EXEMPT

| | | | | |
|-----|-------|----------------|--|---|
| | | | were performed in the field. | delivered to the Chicago Region Lab on 6/9/2016. |
| S06 | water | 6/8/16 – 17:58 | Samples were collected from Marsh Creek. Samples were collected for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. Measurements for pH and conductivity were performed in the field. | Grab samples were collected directly to sample bottles. All samples were placed in a cooler containing ice and preserved as required. The samples were delivered to the Chicago Region Lab on 6/9/2016. |
| R07 | water | 6/8/16 – 19:17 | Field Blanks for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury. | Distilled deionized water from the Chicago Regional Lab was transported in 1 gallon water cubes. Blank samples for TSS, TDS, Sulfate, Chloride, Total Metals and Mercury were poured from the water cubes directly to the sample bottles. The samples were preserved as required and placed in a cooler with ice. The samples were delivered to the Chicago Region Lab on 6/9/2016. |

The facility personnel elected to take their own samples at Outfall 003 and 202 at the same locations and approximately the same times as the EPA samples. The facility used their own bottles and preservatives and declined taking samples at the instream locations.

1.4 Sample Shipping Information

All samples were tagged, placed in a cooler and packed with ice. Custody was maintained during the inspection by locking the samples in an EPA vehicle. Jonathan Moody retained the vehicle keys. After being sealed in a bag in the coolers, the samples were taken by John Jurevis to the Chicago Regional Lab on June 9, 2016. Copies of the chain –of-custody forms are included in Appendix B.

ENFORCEMENT CONFIDENTIAL/ FOIA EXEMPT

2. SAMPLING RESULTS

| TABLE 2 | | | | | | |
|--|---|-------------|-------------|------------------|-----------------------------|------------------|
| Sunrise Carlisle Mine - Field Monitoring Locations and Measurements | | | | | | |
| Monitoring Point | Description | Date | Time | pH (S.U.) | Conductivity (uS/cm) | DO (mg/l) |
| 1 | At 004 Outlet, In Pond | 6/8/2016 | 1245 | 8.82 | 238 | 10.42 |
| 2 | At Channel/Diversion on impoundment | 6/8/2016 | 1455 | 8.31 | 470 | 10.50 |
| 3 | Pond 003 at Inlet | 6/8/2016 | 1500 | 8.66 | 3800 | 10.15 |
| 4 | At 003 Outlet in Pond | 6/8/2016 | 1520 | 8.37 | 3722 | 8.14 |
| S01 | 003 Discharge | 6/8/2016 | 1523 | 8.17 | 3747 | - |
| D01 | 003 Discharge Duplicate | 6/8/2016 | 1530 | 8.19 | 3740 | - |
| 5 | Inlet to Pond D | 6/8/2016 | 1605 | 7.75 | 2190 | 13.79 |
| S03 | Outfall at Pond D, 202 or 002 in Pond | 6/8/2016 | 1615 | 8.94 | 798 | - |
| S04 | Marsh Creek at downstream side of S. County Road 13 SE | 6/8/2016 | 1707 | 8.34 | 338 | - |
| S05 | Marsh Creek at Upstream Side of E. State Road 58 | 6/8/2016 | 1733 | 7.83 | 649 | - |
| S06 | Marsh Creek at Upstream Side of S. County Road 50 E | 6/8/2016 | 1758 | 8.14 | 618 | - |
| 6 | Coal Storage Collection Sump, west of Pond C. | 6/9/2016 | 845 | 2.52 | 5468 | 6.56 |
| 7 | West End of Pond C | 6/9/2016 | 850 | 5.60 | 5532 | 6.85 |
| 8 | Runoff from Refuse Pile | 6/9/2016 | 917 | 2.06 | 16266 | 0.72 |
| 9 | Ditch by Coal Storage Pile approx. 30 feet upstream of treatment | 6/9/2016 | 926 | 6.65 | 6090 | 7.10 |
| 11 | Downstream of in-ditch treatment | 6/9/2016 | 930 | 11.95 | 7864 | 6.75 |
| 10 | Downstream end of culverts from the sediment basin on the south west corner of the covered disposal site. | 6/9/2016 | 933 | 7.44 | 2341 | 7.80 |
| 12 | Downstream end of culvert with Mine water | 6/9/2016 | 948 | 7.70 | 8382 | 7.66 |
| 13 | Downstream culvert with pumped flow from underground conveyor at coal storage | 6/9/2016 | 953 | 4.58 | 5161 | 3.40 |
| 14 | At Pipe from Mine Water | 6/9/2016 | 1008 | 7.53 | 8280 | 4.72 |
| 15 | Confluence of Prep Plant Yard and culverts with flow from covered refuse | 6/9/2016 | 1026 | 6.99 | 2044 | 5.07 |

ENFORCEMENT CONFIDENTIAL/ FOIA EXEMPT

| TABLE 3 Sample Results | | | | | | | |
|---|--------------------------------|--|--|---|--|--|--------------------------------|
| Parameter | Outfall 003 S01 | Outfall 003 Duplicate D02 | Outfall at Pond D S03 | Marsh Creek at S. CR 13 SE S04 | Marsh Creek at E. State Rd 58 S05 | Marsh Creek at S. CR 50 E S06 | Field Blank R07 |
| Date | 6/8/2016 | 6/8/2016 | 6/8/2016 | 6/8/2016 | 6/8/2016 | 6/8/2016 | 6/8/2016 |
| Time | 1523 | 1530 | 1615 | 1707 | 1733 | 1758 | 1917 |
| Field Measurements | | | | | | | |
| pH (S.U.) | 8.17 | 8.19 | 8.94 | 8.34 | 7.83 | 8.14 | -- |
| Conductivity (uS/cm) | 3747 | 3740 | 798 | 338 | 649 | 618 | -- |
| Water Quality | | | | | | | |
| Total Suspended Solids (mg/l) | 15 | 7 | 18 | U | 15 | 23 | U |
| Total Dissolved Solids (mg/l) | 2650 | 2660 | 466 | 262 | 514 | 418 | U |
| Sulfate (mg/l as SO ₄) (mg/l) | 1330 | 1350 | 84.3 | 26.0 L | 143 | 70.6 | 0.07 J |
| Chloride (mg/l) | 417 | 414 | 118 | 33.7 L | 71.3 | 40.2 | 0.07 J |
| Hardness (mg CaCO ₃ /l) | 628 | 623 | 210 | 152 | 229 | 297 | U |
| Total Metals | | | | | | | |
| T. Aluminum (mg/l) | 0.367 | 0.218 | 0.745 | 0.828 | 1.270 | 0.752 | U |
| T. Calcium (mg/l) | 181 | 180 | 41.8 | 36.8 | 55.6 | 70.8 | U |
| T. Iron (mg/l) | 0.367 | 0.201 | 0.880 | 0.55 | 1.30 | 0.884 | U |
| T. Magnesium (mg/l) | 42.6 | 42.2 | 25.7 | 14.7 | 22.0 | 29.1 | U |
| T. Arsenic | 1.08 | 1.08 | 3.03 | U | U | 1.03 | U |
| T. Cadmium | 6.21 | 4.59 | U | U | 1.19 | 0.50 | U |
| T. Chromium | U | U | 0.89 | 0.77 | 1.28 | 0.89 | U |
| T. Lead | U | U | 0.6 | U | 0.95 | 0.81 | U |
| T. Manganese | 1240 | 1200 | 162 | 18.1 | 299 | 90.7 | U |
| T. Nickel | 100 | 95.8 | 2.53 | 1.39 | 12.2 | 3.86 | U |
| T. Selenium | 11.2 | 11.2 | U | U | U | U | U |
| T. Silver | U | U | U | U | U | U | U |
| T. Copper | 5.21 | 3.76 | 1.98 | 1.4 | 2.01 | 1.45 | 1.73 |
| T. Zinc | 122 | 100 | 10.7 | U | 25.4 | 10.5 | U |

Notes:

All values in ug/l unless noted otherwise

U – Not Detected

J- The identification of the analyte is acceptable; the reported value is an estimate

L- The identification of the analyte is acceptable; the reported values may be biased low. The actual value is expected to be greater than the reported value.

Figure 1 - Sunrise Carlisle Mine - Sampling Locations

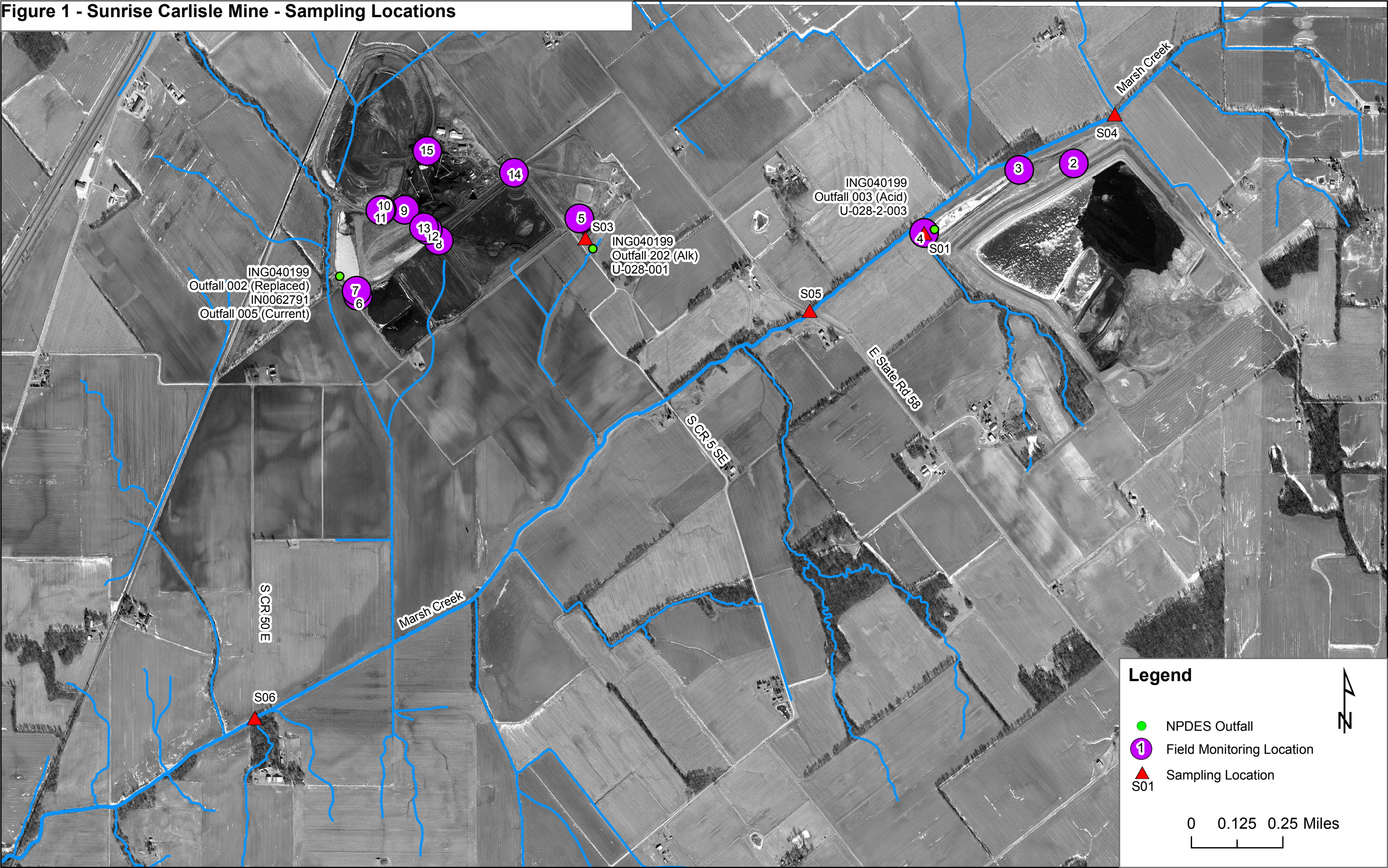


Figure 2 - Sunrise Carlisle Mine - Sampling Locations Close Up

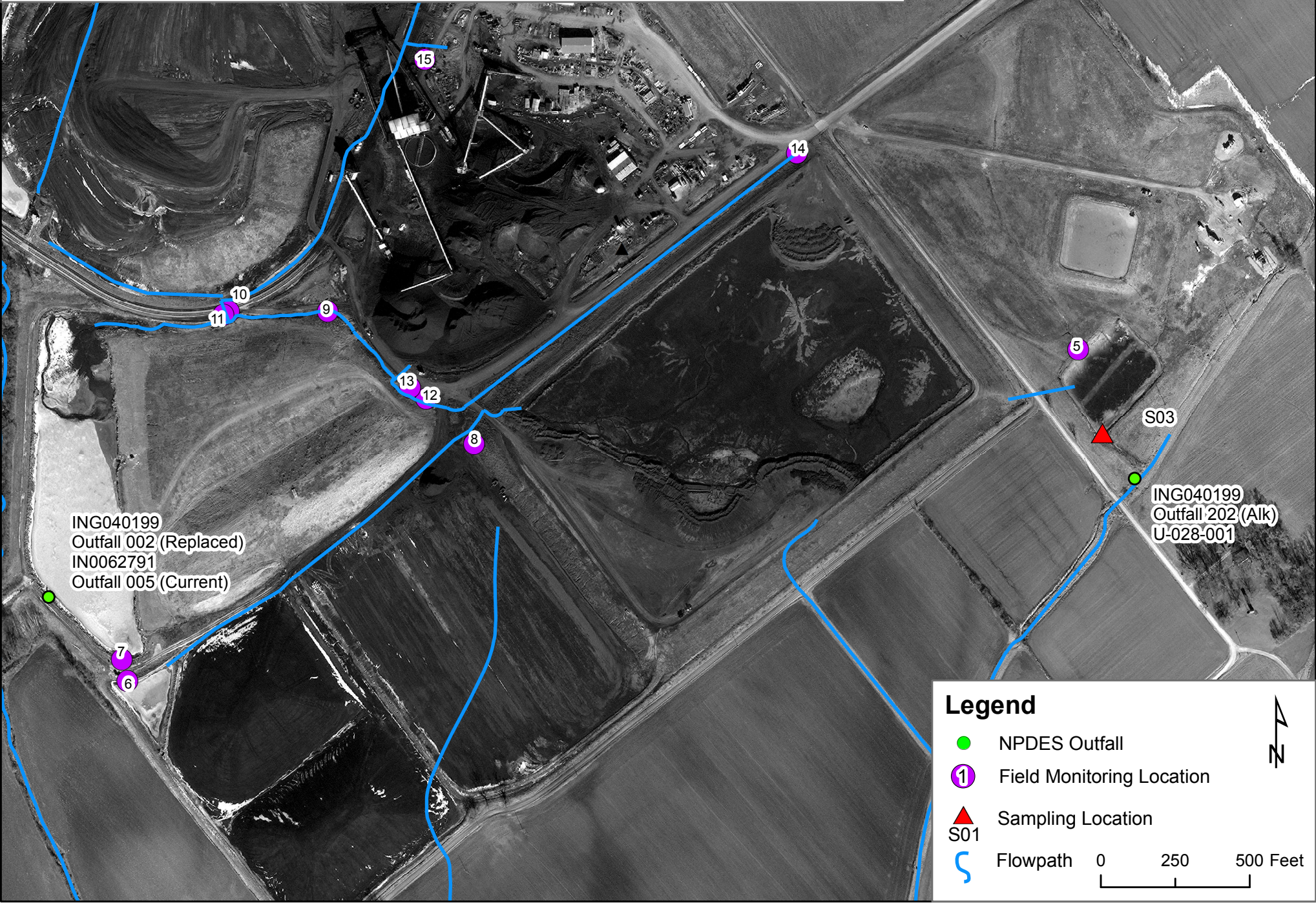


Figure 3 - Sunrise Carlisle Mine - Field Conductivity Measurements

